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Varietal Description of Forge Oriental Mustard

Origin and breeding

Forge oriental mustard was developed by Reckitt and Colman Products Ltd., Carrow, U.K. This variety was derived from the cross "Montana Blonde" x material from China made in 1979. Montana Blonde was derived from Montana Oriental. Both parents of the cross were selected for their high yield, low seed husk and fixed oil contents; the male parent had very good agronomic habit and very high seed volatile oil content. A single F_3 plant was selected and harvested to form the breeder seed of Forge. This selection was made using the Central Axis Selection System on the basis of high leaf area, vigorous early growth, high standing ability, pod concentration, high yield, uniformity of seed size and shape, good seed color, low fixed oil content, high volatile oil content and low husk content. This variety was tested as CJ/86/Z. The breeder experimental number is J/551/7.

Varietal characteristics

Allyl isothiocyanate: higher content than that of Cutlass

Maturity: later than Cutlass and Como

Plant height: taller than Cutlass

Lodging resistance: slightly poorer than Cutlass

Fixed oil content: lower than that of Cutlass and Domo

Seed coat: higher coat content than that of Cutlass; yellow

Seed size: slightly lower 1000-seed weight than that of Cutlass

Green seed: lower percentage than Cutlass

Disease reaction: highly susceptible to white rust (*Albugo candida*)

Performance

Forge has demonstrated acceptable yields with lower levels of fixed oil and green seed and higher levels of volatile oil. This variety has a slightly higher level of coat content and lodging as compared to Cutlass and is highly susceptible to white rust.

Maintenance of breeder seed

Reckitt and Colman Products Ltd., Carrow, Norwich

Canadian distributor

Garst Seed Co. (Canada)

Recommended by

Prairie Registration Recommending Committee on Grain

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Table 1. Agronomic performance of Forge Oriental Mustard and check varieties, co-operative mustard trials, 1986-88*

Performance Characteristic	1986	1987	1988	Mean
Yield (kg/ha)	(14)**	(12)	(10)	
Forge	2695	2483	2094	2424
Cutlass	2643	2594	2204	2480
Domo	2503	2407	—	—
Maturity (days)	(12)	(11)	(10)	
Forge	95	96	85	92
Cutlass	92	92	82	88
Domo	93	92	—	—
Lodging resistance (1-5)***	(9)	(7)	(4)	
Forge	1.9	1.3	1.9	1.7
Cutlass	1.7	1.2	1.5	1.5
Domo	2.3	1.6	—	—
Plant height (cm)	(13)	(10)	(10)	
Forge	123	111	97	110
Cutlass	111	97	86	98
Domo	110	99	—	—
Seed fixed oil (%)	(14)	(12)	(12)	
Forge	36.2	34.4	32.8	34.5
Cutlass	38.7	37.4	34.4	36.8
Domo	39.0	38.0	—	—
Seed volatile oil (mg allyl isothiocyanate/g whole seed)	(14)	(12)	(12)	
Forge	12.3	14.3	15.3	14.0
Cutlass	11.5	13.4	13.4	12.8
Domo	11.0	12.3	—	—

* 1986-88: Delacour, Lethbridge, Brooks, Indian Head, Scott, Saskatoon, Outlook, Morden, Portage la Prairie, Landon N.D., Minot N.D., Guelph (1986 only), Watrous, Carman, 1988 only: Oak River, Willston, Fargo, Breckenridge, Crookston

**Number in parenthesis indicates number of station-years included in mean

*** 1 = no lodging

Table 2. Seed quality of Forge and check varieties, Continental Grain Trials, 1987

	Bulked*	Carman	Homewood
Seed fixed oil (%)			
Forge	33.9	34.6	32.1
Cutlass	36.0	—	—
Domo	37.9	35.9	36.2
Seed volatile oil (mg/g whole seed)			
Forge	14.0	13.0	13.0
Cutlass	22.0	—	—
Domo	11.0	11.0	11.0

* Carman, Gilbert Plains, Melfort, Minot

Table 3. Seed quality of Forge and Cutlass, Norwick, U.K. Analysis of samples of single replicates of each variety in 1988 co-operative mustard trials

	Minot*	Will.	I.H.	Outl.	Crook.	Leth.	Breck.	Brooks	Mean
Seed fixed oil (%)									
Forge	29.7	26.6	33.0	33.9	31.4	32.5	30.8	29.0	30.9
Cutlass	29.8	27.0	35.0	35.8	33.7	35.1	32.5	32.7	32.7
Seed volatile oil (%)									
Forge	1.69	1.94	1.55	1.33	1.44	1.78	1.72	1.72	1.66
Cutlass	1.44	1.51	1.50	1.37	1.30	1.53	1.48	1.51	1.45
Seed husk (%)									
Forge	12.0	10.5	12.0	15.0	12.5	11.0	13.0	11.0	12.1
Cutlass	11.5	11.5	12.0	14.5	11.5	10.0	11.0	10.0	11.5
1000 seed weight (g)									
Forge	2.53	3.10	3.39	2.93	1.96	3.18	2.02	3.38	2.81
Cutlass	2.41	2.90	3.71	3.47	2.13	3.61	2.57	3.23	3.00
Green seed (exterior) (%)									
Forge	1.2	1.7	3.2	0.8	0.4	2.0	0	0.5	1.2
Cutlass	12.0	2.4	3.6	1.6	1.2	6.4	1.2	0.7	3.6

* Locations: Minot N.D., Williston N.D., Indian Head, Outlook, Crookston, Lethbridge, Breckenridge, Brooks

Table 4. Agronomic performance of Forge and check varieties, Continental Grain Trials, 1987.

	Carman	Gilbert Plains	Melfort	Minot	Mean
Yield (kg/ha)					
Forge	3410	2320	2590	1740	2515
Cutlass	2530	1970	2680	1620	2200
Domo	3110	2350	2680	1840	2495
Maturity (days)					
Forge	90	97	97	98	95
Cutlass	89	92	88	92	90
Domo	88	93	90	94	91
Lodging resistance (1-5)*					
Forge	2.0	2.0	2.0	—	2.0
Cutlass	1.0	1.3	1.4	—	1.2
Domo	1.8	1.4	1.4	—	1.5
Plant height (cm)					
Forge	131	149	129	—	136
Cutlass	111	121	101	—	111
Domo	118	123	114	—	118

* 1 = no lodging

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